

# NOTES ON CERTAIN CESTODES IN THE SCHOOL OF TROPICAL MEDICINE, LIVERPOOL

BY

T. SOUTHWELL

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Order PSEUDOPHYLLIDEA, Lühe, 1899.

Family *DIBOTHRIOCEPHALIDAE*, Lühe, 1902.

Sub-Family *DIBOTHRIOCEPHALINAE*, Lühe, 1899.

*Dibothriocephalus decipiens* (Diesing, 1850), Lühe, 1899. One specimen and a fragment from a leopard (*Felis pardus*) Manáos, Amazonas. Collected and presented by Dr. R. M. Gordon. July 10, 1921.

*Duthiersia fimbriata* (Diesing, 1850), Montic. and Crety, 1891. Several specimens from a monitor lizard, *Varanus* sp. Madras, India. April 1, 1905.

Order CYCLOPHYLLIDEA, Lühe, 1910.

Family *ANOPLOCEPHALIDAE*, Fuhrmann, 1907.

Sub-family I. *ANOPLOCEPHALINAE*, R. Blanchard, 1891.

*Bertiella studeri* (R. Bl. 1891) Stiles and Hassall, 1902. One specimen measuring 150 mm. in length, 13 mm. in breadth, and 2 mm. in thickness, from a monkey *Cercopithecus pygerythrus*. Ngoa, North-eastern Rhodesia. July 14, 1912.

Collected and presented by Professor Warrington Yorke, M.D.

The species differs from *B. cercopitheci*, Beddard, 1911, in that the eggs bear a pyriform apparatus, and the pores are regularly alternate.

*Bertiella cercopitheci*, Beddard, 1911. One immature specimen and a fragment, from *Cercopithecus pygerythrus*, Ngoa, North-eastern Rhodesia, collected and presented by Professor Warrington Yorke, M.D.

Sub-family II. *LINSTOWINAE*, Fuhr., 1907.

*Oochoristica truncata* (Krabbe, 1879) Zschokke, 1905. Very numerous specimens from the intestine of *Agama colonorum*, Accra, Gold Coast. Collected and presented by Dr. J. W. Scott Macfie, 1912.

*Linstowia ameivae*, Beddard, 1914. Two fragmented specimens from *Ameivia dorsalis*, Kingston, Jamaica. Collected and presented by Professor R. Newstead, F.R.S.

The specimens agree closely with Beddard's description except in the number of testes.

Beddard states that

'The *testes* lie posteriorly to the vitelline gland, and reach forward on either side of it; they do not, however, extend laterally of the ovary. In a given segment the testes were visible in 18 consecutive sections. The largest number counted in the middle of the series was 43. I therefore calculate the total number to be about 200. The testes do not extend laterally beyond the lateral water-vascular vessels.'

In the specimens from Kingston, about 40 testes, only, are present in each segment, but they are very large and would accordingly be present in many consecutive sections.

There can be little doubt that the genera *Linstowia*, Zschokke, 1898, and *Oochoristica*, Lühe, 1898, are very closely related, if not identical.

Family *DAVAINEIDAE*, Fuhr., 1907.

Sub-family *DAVAINEINAE*, Braun, 1900.

*Davainea microscolecina*, Fuhrmann, 1909. Several specimens of this species collected and presented by Professor Warrington Yorke, M.D., Nawalia, North-eastern Rhodesia. June 28, 1911.

Host:—An unknown bird, the vernacular name of which is *Nduwarwo*.

Family *HYMENOLEPIDIDAE*, Railliet and Henry, 1909.

Sub-family *HYMENOLEPIDINAE*, Ransom, 1909.

*Hymenolepis interruptus*, Clerc, 1906. Two specimens from a sparrow *Passer domesticus*, Hoyleake, Cheshire, England. Collected and presented by Professor J. W. W. Stephens, F.R.S.

*Echinocotyle nitidulans* (Krabbe, 1882), Fuhrmann, 1906 (figs. 1-3). Numerous specimens from the intestine of *Tringa alpina*, Hoyleake, Cheshire, England.

As the anatomy of this worm is not known, the following details are added.

The worms measure about 7 mm. in length and the maximum breadth is about  $140\mu$ ; the number of segments varies from about 70 to 112, the average number in nine worms being 93. The segments are imbricated, and the last ones are almost square and measure about  $100\mu$ . The head measures about  $130\mu$  in length and  $145\mu$  in breadth. The rostellum is very prominent and measures about  $75\mu$  in length, terminating anteriorly in an expansion. It can be withdrawn into a very deep muscular sac which is dilated and extends into the neck region. It is armed with a single crown of ten simple hooks which measure  $55\mu$ . The neck measures about  $380\mu$  in length. There are three testes all in a line, and situated posteriorly.



FIG. 1. *Echinocotyle nitidulans*. Head.  $\times 160$ .

The cirrus pouch is enormous and very muscular; it extends practically across the entire segment and has a breadth of about  $25\mu$ . No spines could be seen on the cirrus even under an oil immersion lens. The vas deferens on leaving the cirrus pouch, runs parallel, and posterior to the pouch, dilating into a seminal vesicle. Immediately median to this vesicle a prominent prostate gland can be seen enveloping a short portion of the vas deferens; it appears to be chitinous and resembles a spine; this portion of the vas deferens is very striking under high power magnifications. The vas deferens then splits up into the vasa efferentia.

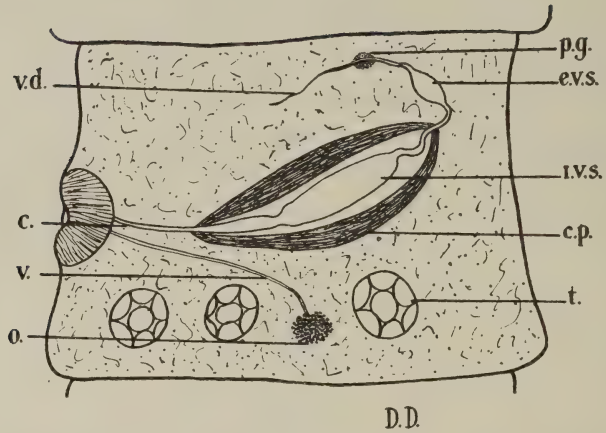


FIG. 2. *Echinocotyle nitidulans*. Segment nearly ripe. *v.d.*—vas deferens; *c.*—cirrus; *v.*—vagina; *o.*—ovary; *t.*—testes; *c.p.*—cirrus pouch; *i.v.s.*—internal seminal vesicle; *e.v.s.*—external seminal vesicle; *p.g.*—prostate gland.  $\times 320$ .

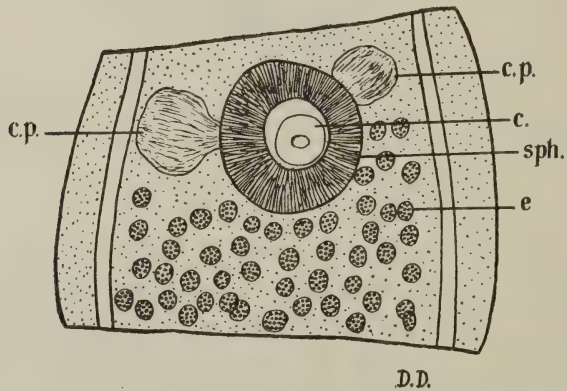


FIG. 3. *Echinocotyle nitidulans*. Side view of gravid segment showing pore. *c.p.*—cirrus pouch; *e.*—eggs; *sph.*—sphincter muscle; *c.*—cirrus.  $\times 320$ .

The genital pores are unilateral and are surrounded by a very powerful sphincter muscle.

The uterus is a simple sac; in many segments it was full of immature eggs. No ripe eggs were seen.

There appears to be no reason for separating this genus (which contains eight species only) from the genus *Hymenolepis*.

Family *TAENIIDAE*, Ludwig, 1886.

Sub-family *TAENIINAE*, Stiles, 1886.

*Multiceps serialis* (Gervais, 1847), Stiles and Stevenson, 1905. Four specimens from a Hyena (spotted leopard), Ngoa, North-eastern Rhodesia. Collected and presented by Professor Warrington Yorke, M.D.

The worms measured about 45 cms. in length and the last segments about 1.3 cms. in length.—Genital pores large, and situated behind the middle of the lateral margin.

Head with a double crown of hooks, the larger measuring  $160\mu$  in length and the smaller  $85\mu$  in length. Uterus with from 14 to 21 lateral branches.

This parasite has hitherto been recorded from *Canis familiaris*, *Lepus caniculus* and *Sciurus carolinensis*.

#### REFERENCES

- BAYLIS, H. A. (1919). On Two Species of the Cestode genus *Oocboristica* from Lizards. *Parasitology*, Vol. XI, pp. 405-414.
- BEDDARD, F. E. (1911). Contributions to the Anatomy and Systematic Arrangement of the Cestoidea. I. On Some Mammalian Cestoidea. *Proc. Zool. Soc.*, London.
- (1914). Contributions to the Anatomy and Systematic Arrangement of the Cestoidea. XIII. On Two New Species belonging to the Genera *Oocboristica* and *Linstowia*, with Remarks upon those Genera. *Proc. Zool. Soc.* London.
- CLERC, W. (1906). Notes sur les Cestodes d'oiseaux de l'Oural. I et II. *Centralbl. Bakt.*, I Abt. Orig., Vol. XLII, pp. 713-730.
- FUHRMANN, O. (1909). Neue Davaineiden. *Centralbl. Bakt.*, I Abt., Orig., Vol. XLIX, pp. 94-124.
- HALL, M. C. (1919). The Adult Taenioid Cestodes of Dogs and Cats and of Related Carnivores in North America. No. 2258 from the *Proc. U.S. Nat. Mus.*, Vol. LV, pp. 1-94.
- JOYEUX, C. (1923). Recherches sur la faune helminthologique africaine. *Archives de l'Institut Pasteur de Tunis*, Vol. XII, pp. 119-167.

- KRABBE, H. (1869). Bidrag til Kundskab om Fuglenes Baendelorme. *Dansk. Vidensk. Selsk. Skr. Naturv.* Math. Afd., Vol. VII, pp. 249-363.
- (1882). Nye Bidrag til Kundskab om Fuglenes Baendelorme. *K. Danske Vidensk. Selsk. Skr. Kjøbenk.*, Naturv. og. Math. Afd., 6 R., Vol. I (7), pp. 349-366.
- LA RUE, G. R. (1914). A Revision of the Cestode Family *Proteocephalidae*. *Illinois Biol. Monographs*, Vol. I, Nos. 1 and 2.
- LÜHE, M. (1910). Die Süßwasserfauna Deutschlands. No. 18 Parasitische Plattwürmer. II. Cestodes. Jena.
- MEGGITT, F. J. (1916). A Contribution to the Knowledge of the Tapeworms of Fowls and Sparrows. *Parasitology*, Vol. VIII, pp. 390-410.
- (1920). A Contribution to our Knowledge of the Tapeworms of Poultry, and a New Species of Cestode *Oocharistica erinacei* from the Hedgehog. *Parasitology*, Vol. XII, pp. 301-309 and pp. 310-313.
- (1924). On Two Species of Cestoda from a Mongoose. *Parasitology*, Vol. XVI, pp. 48-54.
- MONTICELLI, F. S., and CRETY, C. (1891). Ricerche intorno alla sottofamiglia *Solenophorinae*. Montic. and Crety. *Mem. r. Accad. d. sc. di Torino cl. d. sc. fis. mat. e. nat.* 2nd Ser., Vol. XLI, pp. 381-402.
- RATZ, S. VON (1897). Beiträge zur Parasitenfauna der Balatonfische. *Centralbl. Bakt.*, 1 Abt., Orig., Vol. XXII, pp. 443-453.
- (1900). Trois nouveaux cestodes de reptiles. *Compt. rend. soc. biol.*, Vol. LII, pp. 980-981.
- STILES, C. W. (1896). A Revision of the Adult Tapeworms of Hares and Rabbits. No. 1105 from the *Proc. U.S. Nat. Mus.* Vol. XIX, pp. 145-235.